



520.43141X00

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Koichi OKADA et al.

Serial No.: 10/661,574

Filed: September 15, 2004

For: DATA MIGRATION METHOD FOR DISK APPARATUS

Group: 2186

Examiner: Not yet assigned

**INFORMATION DISCLOSURE STATEMENT
UNDER 37 CFR §1.97 & 1.98**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

December 22, 2004

Sir:

In the matter of the above-identified application, Applicants are submitting herewith a search report and copies of the documents listed in the attached form equivalent to Form PTO-1449 for the Examiner's consideration.

This information disclosure statement is being submitted before the mailing date of a first office action on the merits.

Each of the documents listed on the attached form equivalent to Form PTO-1449 is in the English language.

It is respectfully requested that this information disclosure statement be considered by the Examiner.

Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to the deposit account of Mattingly, Stanger & Malur, Deposit Account No. 50-1417 (referencing

attorney docket no. 520.43141X00) please credit any excess fees to such
deposit account.

Respectfully submitted,



Frederick D. Bailey
Registration No. 42,282
MATTINGLY, STANGER & MALUR, P.C.

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FORM PTO-1449 U.S. Department of
Commerce (Rev. 4/92) Patent and Trademark
Office

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(Use several sheets if necessary)

ATTY. DOCKET NO.

520.43141X00

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APPLICANT

Koichi OKADA et al.

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GROUP

2186

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	2003/0212854 A1	11-2003	KITAMURA et al.			
	6,708,232	03-2004	OBARA			
	6,647,476	11-2003	NAGASAWA et al.			
	6,374,327	04-2002	SAKAKI et al.			
	6,598,134	07-2003	OFEK et al.			

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	ABSTRACT	
						YES	NO
	EP 1 130 514 A2	09-2001	Europe				

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if citation is considered, draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

MATTINGLY, STANGER & MALUR, P.C.

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October 15, 2004

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Via Federal Express

Re: Search for Petition to Make Special
US Pat. App. No. 10/661,574
Your Ref: 340300260US01
Our Ref: H-0409-009

Mr. Noboru Otsuka
Senior Patent Engineer
Intellectual Property Group
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Kanagawa 244-0817, JAPAN

Dear Mr. Otsuka:

In accordance with your request of September 23, 2004, we have conducted a pre-examination prior art search in compliance with the requirements of MPEP 708.02 VIII (C) for filing a Petition to Make Special in the above-referenced patent application.

Subject Searched

The search was directed to the invention set forth in claims 1-6 in the above-referenced application. Specifically, claims 1-6 are directed to a computer system and a method of controlling an interface command of a computer system. The system includes one or more host computers and an old disk apparatus connected to the host computers. A new disk apparatus is newly connected to the host computers via a switch. The old disk is connected to the host computers via the switch and data migration from the old disk to the new disk is executed via the switch. A command inquiring disk identification is identified as an interface command from the host computers and a command for inputting and outputting data. The command for inquiring the disk identification is sent to the old disk apparatus. The old disk apparatus and the new disk apparatus may operate by a SCSI command from the host computers, and a SCSI command utilized by the host computers for identifying the disk apparatus exchanges data so as to utilize the same disk apparatus before and after data migration. In addition, the old disk apparatus may be reused for storing data following data migration.

Field of Search

We conducted our initial search using the US Patent Office's Examiner Application Search Tool (EAST) database and image retrieval system. The EAST database contains images of all issued US patents and published US patent applications searchable by subclass or document number. The EAST database also contains the searchable full text of US patents issued since 1971; the searchable full text of all US published patent applications; and the searchable abstracts of a large number of patents and patent applications from the European and Japanese Patent Offices. We used keyword searching and forward/backward cross-referencing to locate relevant art, and we also searched, in particular, in the following *US Manual of Classification* subclasses:

<u>Class</u>	<u>Subclass</u>
711	112, 114, 165
714	7

Because of the large size of these subclasses, we used keywords to narrow the number of documents returned. We also conducted a search for foreign art using the European Patent Office's ESPACENET database, and we searched, in particular, in international subclass G06F011/14A4B directed to backing up, restoring, or mirroring files or drives, and G06F011/20L6H, directed to managing spare storage units--hot spares. Additionally, we conducted a search for relevant literature using the DIALOG online databases, but we did not locate any articles of particular interest.

Please note that although we use our best efforts to attempt to locate all relevant prior art when conducting a search, patent searching is an inexact discipline. Due to imprecision in the USPTO's methods of classifying patents, and vagaries in the system of patent drafting in general, we can never guarantee that all relevant art has been located. Thus, there is always some possibility that other relevant patents may exist in addition to those listed herein. Should you desire that we conduct additional searching on this subject, please let us know.

Prior Art Located

Patents and/or published patent applications located by our search that are believed to be of interest are as follows:

<u>Document No.</u>	<u>Inventor</u>
*US 6374327	Sakaki, Hidetoshi et al.
US 6598134	Ofek, Yuval et al.
*US 6647476	Nagasawa, Teruo et al.
*US 6708232	Obara, Kiyohiro
*US 20030212854	Kitamura, Manabu et al.
*EP1130514A2	Watanabe, Naoki et al.

*Indicates Hitachi patent or published application

Discussion

As instructed, we have included below a discussion of each of these references explaining what each of the references teach, and explaining why the claimed invention is not anticipated by the reference, or is otherwise distinguished from the reference.

The patent to Sakaki, US 6374327, shows a method, apparatus, and computer program for controlling data migration between an old storage system and a new storage system. Under the method of Sakaki, when access by the CPU is generated, if the access is to a region where data migration has been completed, then processing of the access is handled by the new storage system. On the other hand, if the access is to a region where data migration has not been completed, then processing of the access is handled by the old storage system, causing data related to the access to be transferred to the new storage system. However, Sakaki does not teach the present invention, including a switch and incorporating the step of identifying a command for inquiring disk identification as an interface command from the host computer and sending the command to the old disk apparatus.

The patent to Ofek, US 6598134, shows a system of on-line, real-time data migration from an existing storage device to a replacement storage device. The existing and replacement storage devices are coupled, and when a host system makes a data transfer request, the replacement storage device determines whether the data elements have already migrated to the replacement storage device. Thus, Ofek does not teach the present invention, including identifying a command for inquiring disk identification as an interface command from the host computer and sending the command to the old disk apparatus.

The patent to Nagasawa, US 6647476, shows a system and method for enabling data migration between old and new subsystems. However, unlike the present invention, Nagasawa does not use a switch for performing data migration while also connecting the old disk to the host computers.

The patent to Obara, US 6708232, shows a data migration method, protocol converter, and switching apparatus for transferring data from a computer and existing first storage system using a SCSI interface to a new second storage system using a SAN. The computer is connected by a switch to the second storage system and the first storage system, and data is migrated through the switch to the second storage system. Although the switch of Obara includes protocol converters, Obara does not teach the method of the present invention, including identifying a command for inquiring disk identification as an interface command from the host computer and sending the command to the old disk apparatus.

The published US patent application to Kitamura, US 20030212854, shows a computer system in which data is migrated from an old storage subsystem to a new storage subsystem through a fiber channel switch. However, unlike the present invention, Kitamura uses a back end server to control data migration from the old storage subsystem to the new

Mr. Noboru Otsuka, Senior Patent Engineer
Patent Department V, HITACHI, LTD.
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storage subsystem using a data migration unit. The back end server subsequently switches a virtual disk setting causing the virtual disk to correspond to the new storage subsystem.

The published European patent application to Watanabe, EP1130514A2, shows a data migration method in which a new disk system is connected to a switch that has already been connected to a host and an old disk system. The new disk system reads the configuration information of the old disk system and, in the switch, the physical port ID of the old disk system and the physical port ID of the new disk system are exchanged. However, Watanabe does not teach the present invention, including the step of identifying a command for inquiring disk identification as an interface command from the host computer and sending the command to the old disk apparatus.

Conclusion

As you requested, two CD-R's are enclosed containing electronic copies of the references located and this report. Our invoice is enclosed for services and disbursements expended in conducting the search. Should you have any questions regarding the search or its results, please let us know.

Best regards,

Mattingly, Stanger & Malur, P.C.

By:

Colin D. Barnitz

Enclosures